

REMARKS

The Examiner is thanked for the due consideration given the application.

Claims 1, 3-8, 10, 11, 13-15 and 17-23 remain in this application. Claims 2, 9, 12 and 16 have been canceled. Claims 21-23 are new and find support in the specification at paragraphs [43] and [51] of the originally filed specification.

No new matter is believed to be added to the application by this amendment.

Claim Rejections

Claims 1, 3-7, 11, 13-15 and 17-20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over ALDERTON (US Patent 3,635,557) in view of BOCK (US Patent 5,012,275).

Claims 8 and 10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over ALDERTON in view of BOCK and WU et al. (US Patent 5,847,846).

These rejections are respectfully traversed.

The present invention pertains to the scanning of two-dimensional objects, particularly fragile books. Unlike the applied art, the present invention permits:

- scanning of documents, first of all weak bound books of high value in a manner that does not require full or considerable opening of the books; and

- enhancing the scanning quality, i.e., enabling distortion-free scanings without any gleams and ghost contours and ghost images in the recorded image.

Both aims have been fulfilled by the proposed simple arrangement of the document to be scanned, the recording means and the illuminating means in relation to each other.

For example, Figure 4 (reproduced below) shows how the present invention permits the scanning of an only partially opened book.

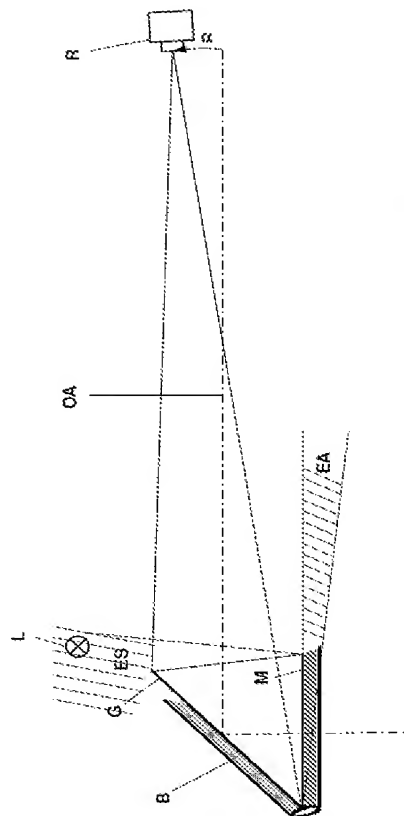


FIG. 4

In this case the book need not be opened at an angle greater than about 50°.

Another advantageous configuration of the present invention is shown in Figure 5, reproduced below.

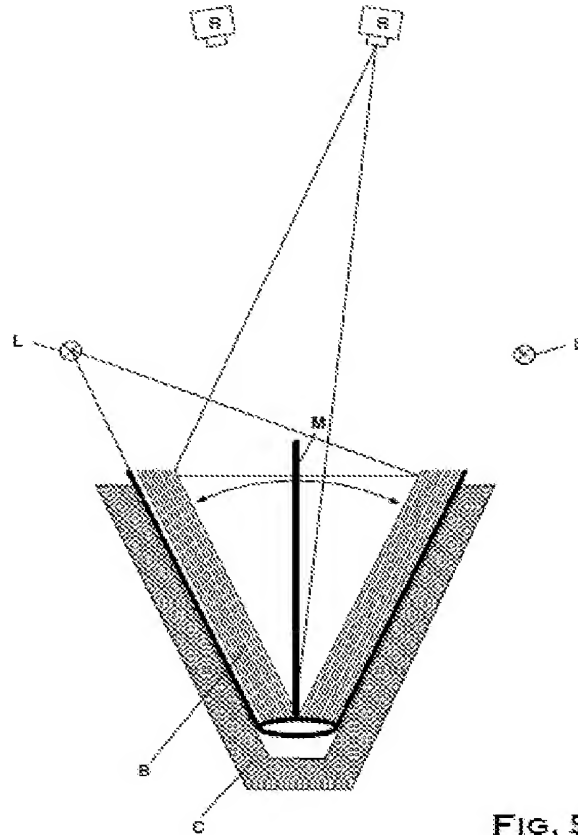


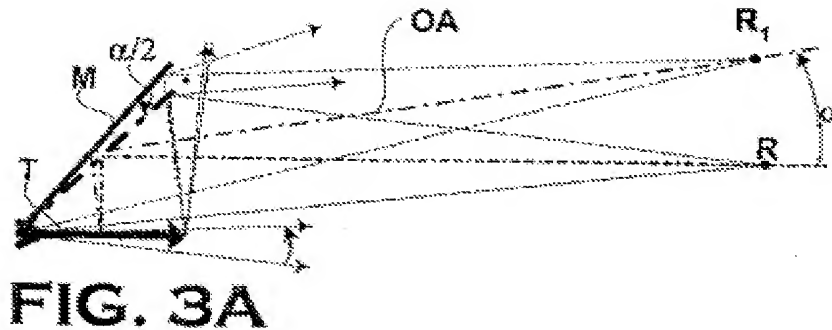
FIG. 5

In this cradle configuration the book is only partially opened, and both pages can be photographed without the book being moved.

Both the mode shown in Figures 4 and 5 are especially suitable for sensitive books. Figures 4 and 5 are reflected in new claims 21-23.

To be more specific imaging is performed by an optical unit, a light source and an optical recording device, where the optical recording device turns α while the optical

unit turns $\alpha/2$. By way of example, Figure 3A is reproduced below.

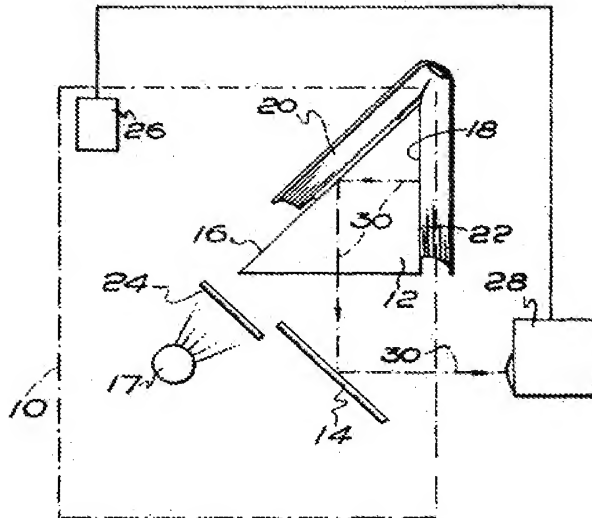


Among the problems solved by the present invention are those arising from reflections and ghost images. This problem is addressed by flattening the mapping surface and by performing the geometrical manipulations set forth in the instant independent claims.

As has been noted scanning fragile books is facilitated by first, lowering the opening angle of the book to be scanned as much as possible and second, eliminating the reflections and ghost images resulting from the scanning scenario. Both needs are fulfilled by turning away the recording lens and the mirror in the manner indicated in the independent claims.

In comparison, the arrangement of ALDERTON (reproduced below), without turning, could produce harmful reflections, and ALDERTON does not in the least deal with this problem. ALDERTON thus neither discloses nor infers

any solution to the elimination of such reflections and ghost images.



In ALDERTON a prism 12 is utilized, the prism having a surface facie 22 on which the page 18 to be copied rests (col. 2, lines 54-56). This prism is 45°-45° (column 2, line 40) which indicates an inordinate bulk inimical to the reduced book openings favored by the present invention.

In contrast, the optical unit (M) of the present invention is a mirror (see claims 4, 5, 13, 14, 18 and 19) that is capable of the $\alpha/2$ movement of the present invention.

Similarly, BOCK does not contain any teaching or inference: 1) to eliminate the formation of reflections and ghost images arising in scanning processes with known book scanners, and 2) how this eliminating is put into practice. Consider, for example, Figure 3 of BOCK reproduced below.

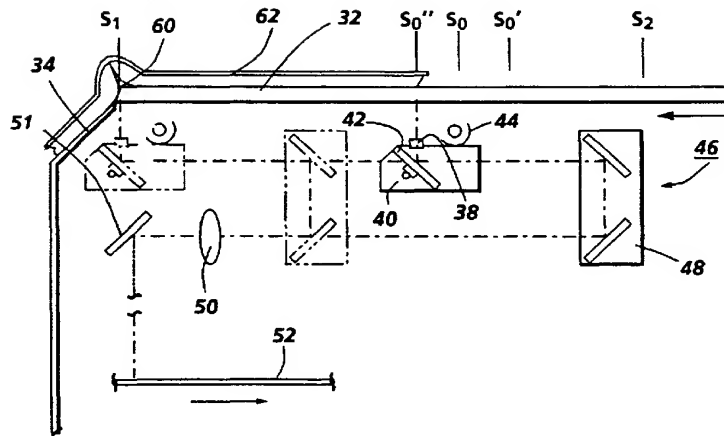


FIG. 3

As can be seen, the technology of BOCK is for a photocopier which would stress and damage sensitive books, unlike the present invention. Nonetheless, the Office Action refers to Col. 3, lines 31-35 of BOCK, which states:

Briefly, lens 50 is rotated through a small angle θ mirror 42 is rotated by an angle $\theta/2$ to reflect light from the interior of binding are 60. Mirror 51 is rotated through an angle $\theta/2$ to maintain required perpendicularity at the surface of belt 52. 35

However, the angle α of the present invention is in relationship to the optical unit (M) which is in contact with the book. In BOCK the feature corresponding to (M) is the plate glass surface of the copier, which is fixed, and there cannot be any adjustment of the angle α by this fixed surface. XU et al. (US 2002/0085248) used as evidence for distortion in the center of the book, does not address this deficiency of BOCK.

Additional distinctions of the present invention over ALDERTON and BOCK are of record in the application which, for brevity, are not repeated here.

WU et al. does not address the deficiencies of ALDERTON or BOCK as discussed above.

One of ordinary skill and creativity would thus fail to produce a claimed embodiment of the present invention from knowledge of ALDERTON, BOCK, and WU et al. A *prima facie* case of unpatentability has thus not been made.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

The Examiner is thanked for considering the Information Disclosure Statement filed January 3, 2007.

The rejections are believed to have been overcome, obviated or rendered moot, and no issues remain. The issuance of a Notice of Allowability is accordingly respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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